

cured prior to final placement in a structure.

Reshoring: the construction operation in which shoring equipment (also called reshores or reshoring equipment) is placed, as the original forms and shores are removed, in order to support partially cured concrete and construction loads.

Ridge pole: the longitudinal board, set on end, which is tied to the upper ends of roof trusses.

Roofing bracket: a bracket fastened to the roof or supported by ropes fastened over the ridge of the roof and secured to a suitable structural member,

Safety monitoring system: a safety system in which a competent person monitors the safety of all employees in a roofing crew and warns them when it appears to the monitor that they are unaware of the hazard or are acting in an unsafe manner. This competent person must be on the same roof as and within visual sighting distance of the employees and must be close enough to verbally communicate with the workers.

Shoring: a supporting member that resists a compressive force imposed by a load.

Shore head: a horizontal member fastened atop vertical shoring.

Sill: a horizontal member placed on the foundation and upon which shores are supported.

Tremie: a pipe or tube through which concrete is placed under water.

Troweling machine: a device utilizing rotating trowels on radial arms and used in concrete finishing operations.

Vertical slip forms: forms which are jacked vertically during the placement of concrete.

SECTION 28

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW) AND UNDERGROUND STORAGE TANK (UST) ACTIVITIES

28.A GENERAL

28.A.01 The requirements in this section apply to:

- a. clean-up operations, including initial investigations and assessments and underground tank removal, involving hazardous, toxic, and radioactive waste (HTRW) activities, and
- b. emergency operations in response to releases of hazardous substances at HTRW sites.

28.A.02 Hazard evaluation and control.

- a. HTRW activities shall be evaluated to identify hazards specific to the activity and to determine procedures appropriate for controlling employee exposure to those hazards. **> See Section 28.C**
- b. Control procedures shall be implemented prior to initiating site activities.

28.A.03 Employees who will be working on an HTRW activity shall be informed of any risks that have been identified.

- a. Any information concerning the chemical, physical, or toxicological properties of each substance known or suspected to be present on site that is available to the employer and relevant to the duties an employee is expected to perform, shall be made available to the affected employees prior to the commencement of their work activities. Any MSDS developed for hazard communication may also be used.
- b. An information program shall be developed and implemented to inform personnel engaged in hazardous

waste activities of the nature, level, and degree of exposure likely because of participation in such activities and the hazards of, and controls for, those exposures. This information program shall be part of the safety and health program (SHP).

c. Contractors and subcontractors shall inform all employees engaged in HTRW activities of:

- (1) any potential safety, health, fire, explosion, or other hazard of the activity;
- (2) applicable requirements of the safety and health program; and
- (3) emergency response procedures.

28.A.04 Training. **> See Section 28.D**

a. All employees working on an HTRW activity, and their supervisors and management responsible for the activity, shall receive training before they are allowed to engage in HTRW activities that could expose them to hazardous substances or safety or health hazards.

b. Personnel are prohibited from participating in, or in the on-site supervision of, HTRW activities unless they have been certified as having successfully completed the training to a level required by their position function and responsibilities.

28.A.05 Pre-entry briefings shall be held for employees prior to their initiating any new or differing site activity and at such other times as necessary to ensure that employees are knowledgeable of the site-specific safety and health plan (SSHP) and activity hazard analysis and that the plan and analysis are being followed.
> Briefings shall be documented per 01.B.03b

28.A.06 Medical surveillance shall be conducted in accordance with the requirements delineated in Appendix K; employees included in medical surveillance shall maintain documentation, in their possession or otherwise on site, of current medical status

while they are engaged in site activities.

28.A.07 Inspections.

a. Inspections shall be conducted by the Site Safety and Health Supervisor or, in the absence of that individual, another individual who is knowledgeable in occupational safety and health, acting on the behalf of the employer as necessary to determine the effectiveness of the SSHP. **> See Section 01.A for inspection requirements**

b. Deficiencies in the implementation or effectiveness of the SSHP shall be brought to the attention of the employer for correction.

28.A.08 Prior to initiating excavation, subsurface exploration shall be used to determine the location and depth of drums. Subsurface exploration shall not create additional hazards nor present a hazard to subsurface drums: the use of non-intrusive techniques shall be taken into consideration.

28.A.09 Drums and containers used during hazardous waste clean-up shall meet the appropriate DOT, OSHA, and EPA requirements.

28.A.10 Emergency operations.

a. Emergency operations involving hazardous, toxic, or radioactive waste conducted at USACE facilities shall be conducted in accordance with 29 CFR 1910.120(q).

b. Prior to performing emergency operations, all persons shall have successfully completed training specified in 29 CFR 1910.120(q)(6) to a level required by their position functions and responsibilities.

28.B SAFETY AND HEALTH PROGRAM

28.B.01 When employees are engaged in HTRW activities (including preliminary assessments and underground tank work) a safety and health program shall be developed and implemented; existing written SHPs are acceptable if they are modified to cover the criteria in Table 28-1. > **See Table 28-1**

- a. The SHP shall cover the items listed in Table 28-1 and provide for the identification, evaluation, and control of safety and health hazards and provide for emergency response for HTRW activities.
- b. SHPs and SSHPs shall have a cover sheet for the names, titles, and signatures of the qualified competent persons assigned by the employer to develop and review them: a SHP or SSHP will not be considered to have been reviewed or accepted unless this cover sheet has all of the necessary signatures.
- c. For government operations, the SSHP shall be made available to all contractor and subcontractor employees.
- d. For contract activities, the prime contractor shall integrate all subcontractor work activities into the SSHP, make the SSHP available to all contractor and subcontractor employees, and ensure all subcontractors integrate provisions of the SSHP in their work activities.
- e. The SSHP shall be reviewed and updated as necessary in order to keep it current and effective.
- f. A project SSHP may be considered to satisfy the requirement for an accident prevention plan if the SHP covers all of the elements required of an accident prevention plan. > **See Section 01.A**

28.B.02 A site control program (included in the SSHP portion of

TABLE 28-1

SAFETY AND HEALTH PROGRAM OUTLINE REQUIREMENTS

1. Organizational structure. Establishes the safety and health policy for the project; specifies the lines of authority and the overall responsibilities of employees, management, and supervisors; details the means, lines, and procedures for communication; outlines requirements for safety and health inspections, safety and health meetings, and accident investigating and reporting. In addition, identifies:
 - a. The general supervisor who has the responsibility and authority to direct all hazardous waste operations,
 - b. The site safety and health officer who has the responsibility and authority to develop and implement the site-specific safety and health plan and verify compliance, and
 - c. Other personnel needed for the safety and health of HTRW operations and emergency response, specifying their general functions and responsibilities.
2. Comprehensive workplan. Defines work tasks and objectives of the site activities; identifies the methods, logistics, and resources for accomplishing those tasks and objectives; and establishes personnel requirements for implementing the comprehensive workplan.
3. Site-specific safety and health plan (SSHP). Addresses the safety and health hazards of each phase of site activity and the procedures for their control. The SSHP is developed from information obtained during site characterization and analysis and addresses the following:
 - a. Safety and health risk or hazard analysis for each site task and operation delineated in the workplan,
 - b. Employee training assignments,
 - c. Personnel protective equipment program (including personal protective equipment requirements for site activities) and decontamination procedures,
 - d. Medical surveillance requirements,
 - e. Frequency and type of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration,
 - f. Emergency response plan, including necessary personal protective equipment,
 - g. Confined space entry procedures,
 - h. Spill containment program, and
 - i. Site control program.

the SHP) shall be developed during the planning stages of HTRW clean-up activities and modified as necessary when new information becomes available. As a minimum, the site control program shall include:

- a. a site map and site work zones;
- b. requirements for use of the buddy system;
- c. requirements for site communications, including alert means for emergencies;
- d. standing operating procedures and safe work practices (safe work practices shall be in the form of an activity hazard analysis);
- e. identification and phone numbers of the nearest emergency assistance; and
- f. site security procedures.

28.C. SITE CHARACTERIZATION AND ANALYSIS AND INITIAL SITE ENTRY

28.C.01 Preliminary evaluation.

- a. A preliminary evaluation of a site's characteristics and hazards shall be conducted by a qualified person prior to site entry in order to determine the appropriate safety and health controls.
- b. The following information, to the extent available, shall be obtained prior to allowing employees to enter a site and shall be included in this evaluation;
 - (1) location and approximate size of the site;
 - (2) description of the response activities and/or position tasks to be performed and the duration of planned employee activities;
 - (3) site topography and accessibility by air and roads;
 - (4) safety and health hazards anticipated at the site and their chemical and physical properties;
 - (5) pathways for hazardous substance dispersion; and
 - (6) present status and capabilities of emergency response teams that would provide assistance to HTRW site employees,

the names and responsibilities of team members and leaders, and the procedures for contacting the team.

28.C.02 Detailed evaluation.

- a. Immediately following initial site entry, a detailed evaluation of the site-specific hazards shall be performed by a qualified person.
- b. The results of the detailed evaluation shall be used to verify the preliminary evaluation, to further identify existing site hazards, and to determine appropriate safety and health controls for the activities to be performed.

28.C.03 Hazard Identification.

- a. All suspected conditions that may pose inhalation or skin absorption hazards that are IDLH, and any other condition that could cause death or serious harm, shall be identified during the preliminary survey and analyzed in the detailed evaluations.
- b. Once the presence and concentrations of specific hazardous substances and health hazards have been established, the risks associated with these substances shall be identified and controls appropriate for the hazards shall be determined and implemented. > **See 28.A.03**

28.C.04 PPE shall be provided and used during initial site entry.

- a. Personal protective equipment shall provide protection to a level of exposure below permissible exposure limits and published exposure levels for known or suspected hazardous substances and health hazards, and which will provide protection against other known and suspected hazards identified during the preliminary evaluation. (If a hazard does not have a permissible exposure limit or published exposure level, other published guidelines and information may be used as a guide to appropriate personal protective equipment.)

- b. If positive-pressure self-contained breathing apparatus is not used as part of the entry ensemble, and if respiratory protection is warranted by the potential hazards identified during the preliminary evaluation, an escape self-contained breathing apparatus of at least five minutes duration shall be carried by each employee during initial site entry.
- c. If the preliminary evaluation does not produce sufficient information to identify the hazards or suspected hazards at the site, an ensemble providing protection equivalent to Level B personal protective equipment shall be used for minimum protection and direct reading instruments shall be used as appropriate for identifying IDLH conditions.

28.C.05 Monitoring.

- a. During initial site entry, the following monitoring shall be conducted when the preliminary evaluation indicates the potential for ionizing radiation or IDLH conditions or when the preliminary evaluation does not produce sufficient information to reasonably eliminate the possibility of these conditions:
 - (1) monitoring with direct reading instruments for hazardous levels of ionizing radiation,
 - (2) air monitoring with appropriate direct reading test equipment for IDLH conditions, or
 - (3) visually observing for signs of actual or potential IDLH or other hazardous conditions.
- b. An on-going air monitoring program shall be implemented after site characterization has determined the site is safe for start up of activities. > **See Section 28.F**

28.D TRAINING

28.D.01 All personnel performing on-site work activities in which they may be exposed to safety or health hazards resulting from hazardous waste operations shall have completed applicable

training in compliance with 29 CFR 1910.120(e).

- a. Training shall be conducted by instructors who meet trainer qualifications of 1910.120(e)(5).
- b. Each employee successfully completing their training and field experience specified shall be certified as having successfully completed the necessary training and shall maintain a copy of the written certification at the project site.

28.D.02 Prior to conducting on-site HTRW activities, all USACE and contractor personnel shall successfully complete a 40-hour HTRW safety and health training course to be followed by an 8-hour annual refresher and/or 8-hour supervisors course as mandated in 29 CFR 1910.120(e).

28.D.03 Site-specific training. Employees shall be trained in the following:

- a. names of personnel and alternates responsible for site safety and health;
- b. safety, health, and other hazards present on site;
- c. use of personal protective equipment;
- d. work practices by which the employee can minimize risks from hazards;
- e. safe use of engineering controls and equipment on the site;
- f. medical surveillance requirements, including recognition of symptoms and signs indicative of overexposure to hazards;
- g. decontamination procedures;
- h. emergency response plan, including the necessary personal protective equipment and other equipment;
- i. confined space entry procedures; and
- j. spill containment program.

28.D.04 Employees who are engaged in responding to hazardous emergency situations at HTRW sites that may expose them to hazardous substances shall be trained and drilled in responding to such emergencies. The frequency of training and

drills shall be such that the employees maintain knowledge of and proficiency in the emergency response procedures.

28.E PERSONAL PROTECTIVE EQUIPMENT

28.E.01 A personal protective equipment program shall be developed as part of the SSHP. The program shall address:

- a. personal protective equipment selection based on site-specific hazards,
- b. the use and limitations of personal protective equipment,
- c. HTRW activity duration,
- d. maintenance and storage of personal protective equipment,
- e. decontamination and disposal of personal protective equipment,
- f. personal protective equipment training and fitting,
- g. equipment donning and doffing procedures,
- h. procedures for inspecting equipment before, during, and after use,
- i. evaluation of the effectiveness of the personal protective equipment program, and
- j. medical considerations, including work limitations due to temperature extremes.

28.E.02 Personal protective equipment selection shall be based on the performance characteristics of the equipment relative to:

- a. the requirements and limitations of the site,
- b. the task-specific conditions and duration, and
- c. the hazards and potential hazards identified at the site.

> See Section 5.E personal protective equipment requirements and Appendix L for description of levels of protection

28.E.03 The level of protection provided by personal protective equipment shall be increased when additional information on site conditions indicates that increased protection is necessary to

reduce exposure below permissible exposure limits or published exposure levels for hazardous substances and health hazards.

28.F MONITORING AND SAMPLING

28.F.01 A monitoring and sampling program shall be established as part of the SSHP. The program shall identify:

- a. the frequency and types of personnel and air monitoring and environmental sampling techniques and instrumentation to be used, and
- b. methods of maintenance and calibration of monitoring and sampling equipment.

28.F.02 Initial and periodic monitoring.

- a. Upon initial site entry, representative air monitoring shall be conducted to identify any IDLH condition, exposure above permissible exposure limits or published exposure levels, exposure over a radioactive material's dose limits, or other dangerous conditions.

- b. Periodic monitoring shall be conducted when the possibility of an IDLH condition or flammable atmosphere has developed, there is indication that exposure may have risen above permissible exposure limits or published exposure levels since prior monitoring, or for the following situations:

- (1) when work begins on a different portion of the site,
- (2) when contaminants other than those previously identified are being handled,
- (3) when a different type of activity is initiated, or
- (4) when employees are handling leaking drums or containers or working in areas with obvious liquid contamination.

28.F.03 Monitoring high-risk employees.

- a. After commencement of HTRW activities, the employer shall

monitor those employees likely to have the highest exposures to hazardous substances and health hazards likely to be present above permissible exposure levels by using personal sampling frequently enough to characterize employee exposures.

b. If the employees likely to have the highest exposure are over permissible exposure limits or published exposure limits, then monitoring shall continue to determine all employees likely to be above those limits.

c. The employer may use a representative sampling approach by documenting that the employees and chemicals chosen for monitoring are based on the criteria stated above. This requirement does not apply to employees engaged in site characterization activities covered by Section 28.C.

28.G UNDERGROUND STORAGE TANK REMOVAL

28.G.01 Prior to initiating the removal or disposal of an underground storage tank (UST) system, information required by 28.A.03 shall be provided to employees. Such information shall be used to select sampling techniques to verify the contents of the tank.

28.G.02 Sampling data shall be used to assess the hazards of the contents and determine controls appropriate for those hazards.

28.G.03 The removal or disposal of UST systems which contained petroleum or other hazardous substances shall be in accordance with the procedures of American Petroleum Institute (API) Recommended Practice 1604, Removal and Disposal of Used Underground Petroleum Storage Tanks. A copy of this publication will be used in developing the hazard analyses for UST system removal/disposal activities and shall be available at the job site.

28.G.04 Hazard analyses for the removal or disposal of an

underground storage tank (UST) system shall address the following:

- a. hazards of UST system contents and procedures for hazard control, to include explosion prevention;
- b. monitoring requirements and procedures;
- c. UST system draining, purging, and cleaning procedures;
- d. excavation safety requirements and procedures for blocking free-standing tanks;
- e. procedures and safety precautions for disassembly, removal, and disposal of system; and
- f. spill contingency planning.

28.H HANDLING DRUMS AND CONTAINERS

28.H.01 The handling of HTRW drums and containers shall be kept to the minimum necessary for:

- a. responding to problems which may affect safety and health,
- b. unstacking and orienting drums and containers for sampling, or
- c. organizing drums and containers in staging areas to facilitate characterization and remedial actions.

28.H.02 Site activities shall be organized to minimize the amount of drums or container movement.

28.H.03 Identification and inspection.

- a. Prior to handling or opening a drum or other container, efforts shall be made to identify their contents.
- b. Drums and containers shall be inspected and their integrity shall be assured prior to being moved.
- c. Drums or containers that cannot be inspected before being moved because of storage conditions (e.g., buried beneath the earth, stacked behind other drums, stacked several tiers high in

a pile, etc.) shall be moved to an accessible location and inspected prior to further handling.

d. Unlabeled drums and containers shall be considered to contain hazardous substances and handled accordingly until the contents are positively identified and labeled.

28.H.04 Handling requirements.

a. Prior to movement of drums or containers, all employees exposed to the transfer operation shall be warned of the potential hazards associated with the contents of the drums or containers and their handling and instructed to minimize handling as much as possible.

b. Where major spills may occur, a spill containment program shall be implemented to contain and isolate the entire volume of the hazardous substance being transferred: USDOT specified salvage drums or containers and suitable quantities of proper absorbent shall be kept available and used in areas where spills, leaks, or ruptures may occur.

c. Drums and containers that cannot be moved without rupture, leakage, or spillage shall be emptied into a sound container using a device classified for the material being transferred.

d. Subsurface exploration shall be used to estimate the location and depth of buried drums or containers; soil or covering material shall be removed with caution to prevent drum or container rupture. > **See 28.A.08**

28.H.05 Opening drums or containers.

a. Where an airline respirator system is used, connections to the source of air supply shall be protected from contamination and the entire system protected from physical damage.

b. Employees not involved in opening drums or containers shall be kept a safe distance from the drums or containers being opened.

c. If employees must work near or adjacent to drums or containers being opened, a suitable shield that does not interfere with the work operation shall be placed between the employee and the drums or containers being opened to protect the employees in case of an accidental explosion.

d. Controls for drum or container opening equipment, monitoring equipment, and fire suppression equipment shall be located behind the explosion-resistant barrier.

e. When there is a reasonable possibility of flammable atmospheres being present, material handling equipment and hand tools shall be of a type to prevent sources of ignition (e.g., non-sparking tools).

f. Drums and containers shall be opened in such a manner that excess interior pressure will be safely relieved, if pressure cannot be relieved from a remote location, appropriate shielding shall be placed between the employee and the drums or containers to reduce the risk of employee injury.

g. Employees shall not stand upon or work from drums or containers.

28.H.06 Material handling equipment used to transfer drums and containers shall be selected, positioned, and operated to minimize sources of ignition related to the equipment from igniting vapors released from drums or containers.

28.H.07 The following precautions shall be taken when drums or containers containing, or suspected of containing, shock sensitive waste are handled.

a. All non-essential employees shall be kept a safe distance

from the area of transfer.

b. Material handling equipment shall be provided with explosive containment devices or protective shields to protect equipment operators from exploding containers.

c. An employee alarm system, capable of being perceived above surrounding light and noise conditions, shall be used to signal the commencement and completion of explosive waste handling activities.

d. Continuous communications shall be maintained between the employee in charge of the immediate handling area and both the site safety and health supervisor and the command post until the handling operation is completed. Communication equipment or methods which could cause shock sensitive materials to explode shall not be used.

e. Drums and containers under pressure, as evidenced by bulging or swelling, shall not be moved until the cause for excess pressure is determined and appropriate containment procedures have been implemented to protect employees from explosive relief of the drum.

f. Drums and containers containing packaged laboratory wastes shall be considered to contain shock-sensitive or explosive materials until they have been characterized.

28.H.08 When handling laboratory waste packs, the following precautions shall be taken in addition to the requirements of paragraph 28.H.07f.

a. Lab packs shall be opened only when necessary and then only by an individual knowledgeable in the inspection, classification, and segregation of the containers within the pack according to the hazards of the wastes.

b. If crystalline material is noted on any container, the contents

shall be handled as a shock sensitive waste until the contents are identified.

28.H.09 Sampling of drum and container contents shall be done in accordance with a sampling procedure which is part of the site-specific safety and health plan.

28.H.10 Shipping and transport.

a. Drums and containers shall be identified and classified prior to packaging for shipment.

b. Drum or container staging areas shall be kept to the minimum number necessary to identify and classify materials safely and prepare them for transport.

c. Bulking of hazardous wastes shall be permitted only after a thorough characterization of the materials has been completed.

28.H.11 Tank and vault procedures.

a. Tanks and vaults containing hazardous substances shall be handled in a manner similar to that for drums and containers, taking into consideration the size of the tank or vault.

b. Entry into tanks or vaults shall be avoided if possible. When entry is required, appropriate tank or vault entry procedures as described by the site-specific safety and health plan shall be followed.

28.I DECONTAMINATION

28.I.01 Procedures for all phases of decontamination shall be developed, communicated to all employees, and implemented before any employee or equipment may enter areas on a site where potential exposure to hazardous substances exists. Decontamination procedures shall specify:

- a. decontamination methods and procedures for testing and evaluating their effectiveness,
- b. the number and layout of decontamination stations and the decontamination equipment needed,
- c. procedures to prevent contamination of clean areas and to minimize employee contact with hazardous substances or with equipment that has contacted hazardous substances,
- d. procedures to be taken if the non-impermeable clothing of an employee becomes wetted with hazardous substances,
- e. methods for disposing of clothing and equipment that are not completely decontaminated, and
- f. methods for disposing of decontamination water and waste.

28.I.02 All employees leaving a contaminated area shall be decontaminated; all contaminated clothing and equipment leaving a contaminated area shall be appropriately disposed of or decontaminated.

28.I.03 Decontamination procedures shall be monitored by the site safety and health coordinator to determine their effectiveness: when such procedures are found to be ineffective, site work shall immediately cease and remain shut down until the situation is correct.

28.I.04 Decontamination shall be conducted in geographical areas that will minimize the exposure of uncontaminated employees and equipment to contaminated employees or equipment.

28.I.05 All equipment and solvents used for decontamination shall be decontaminated or disposed of properly.

28.I.06 Personal protective equipment.

- a. Personal protective equipment shall be decontaminated, cleaned, laundered, maintained, or replaced as needed to maintain their effectiveness.

- b. Unauthorized employees shall not remove protective equipment from change rooms.

- c. Commercial laundries or cleaning establishments that decontaminate protective clothing or equipment shall be informed of the potential harmful effects of exposures to hazardous substances.

28.I.07 Where the decontamination procedure indicates the need for regular showers and change rooms outside a contaminated area, or if clean-up or removal operations will require six months or more to complete, showers and change rooms shall be provided and meet the requirements of Section 2: if temperature effects prevent the use of water, then other effective means for cleansing shall be provided and used.

28.J EMERGENCY RESPONSE

28.J.01 Emergency response plan.

- a. An emergency response plan shall be developed and implemented to handle anticipated emergencies prior to the commencement of hazardous waste activities.

- b. The plan shall be in writing and shall be available for inspection and copying.

- c. If the employees on a hazardous waste site are to be evacuated from the danger zone when an emergency occurs and are not permitted to assist in handling the emergency, an emergency plan, meeting the requirements of Section 01.E, may be used in lieu of an emergency response plan.

28.J.02 The emergency response plan shall address, as a minimum, the following:

- a. pre-emergency planning,
- b. personnel roles, lines of authority, and communication,

- c. emergency recognition and prevention,
- d. safe distances and staging areas (safety zones),
- e. site security and control,
- f. evacuation routes and procedures,
- g. decontamination procedures which are not covered by the site-specific safety and health plan,
- h. emergency medical treatment and first aid,
- i. emergency alerting and response procedures,
- j. critique of response and follow-up, and
- k. personal protective and emergency equipment,
- l. site topography, layout, and prevailing wind conditions, and
- m. procedures for reporting incidents to federal, state, and local governments.

28.J.03 The emergency response plan shall be a separate section of the SSHP.

28.J.04 The emergency response plan shall be compatible and integrated with the disaster, fire, and emergency response plans of local, state, and federal agencies or, for work conducted on DOD installations, the installation.

28.J.05 The emergency response plan shall be rehearsed regularly as part of the overall training program for site operations.
> **See 28.D.04**

28.J.06 The emergency response plan shall be reviewed periodically and, as necessary, amended to keep it current with new or changing site conditions or operations.

28.J.07 An employee alarm system shall be installed to notify employees of an emergency condition, to stop work activities - if necessary, to lower background noise in order to speed communications, and to begin emergency procedures.

28.J.08 Based on the information available at the time of the emergency, the incident and the site response capabilities shall be evaluated and appropriate steps taken to implement the site

emergency response plan.

28.K RESOURCE CONSERVATION AND RECOVERY ACT OPERATIONS

28.K.01 When Resource Conservation and Recovery Act (RCRA) operations are conducted at a treatment, storage, or disposal (TSD) facility, the following programs shall be developed and implemented.

- a. a safety and health program, designed to identify, evaluate, and control safety and health hazards, per Section 28.B,
- b. a hazard communication program per 29 CFR 1910.1200,
- c. a medical surveillance program, per Appendix K,
- d. a decontamination program, per Section 28.I, and
- e. a safety and health training program, per paragraph 28.K.02.

28.K.02 Employees exposed to health hazard or hazardous substances at TSD operations shall be trained to enable them to perform their assigned duties and function in a safe and healthful manner: employees shall receive certificates documenting their successful completion of all required training and shall maintain a copy of this certification at the TSD.

- a. All employees engaged in TSD operations shall have received a 24-hour initial training program covering the items delineated in paragraph 28.E.01.
- b. All employees shall receive an 8-hour refresher training program annually.
- c. All employees who assist in handling emergencies at the TSD shall receive annual training sufficient to certify the employees as knowledgeable of and proficient in the following:
 - (1) the recognition of safety and health hazards,
 - (2) safety and health control methods and equipment,

- (3) the selection and use of personal protective equipment
- (4) the emergency response plan,
- (5) the activity hazard analyses for the emergency operations,
- (6) coordination and communication procedures,
- (7) the appropriate response in over-exposure to health hazards or injury, and
- (8) the recognition of symptoms which may result from over-exposures to health hazards.

28.K.03 Drums and containers shall be handled in accordance with the requirements of Section 28.H.

28.K.04 Emergency response plans.

- a. An emergency response plan shall be developed and implemented when employees are allowed to assist in handling an emergency at the TSD: if employees are to be evacuated from the worksite and not permitted to assist in handling emergencies, the emergency response plan is not required.
- b. The emergency response plan shall cover those items specified in Section 28.J.

DEFINITIONS

Hazardous, Toxic, Radioactive Waste (HTRW) activity: refers to the overall project or worksite involving the investigation, assessment, or clean-up of HTRW or the emergency response to releases of hazardous substances, hazardous waste, or hazardous material as defined by 29 CFR 1910.120(a)(3) or 1926.65, at an HTRW site. Includes those activities undertaken for the EPA's Superfund program, the Defense Environmental Restoration Program (which also includes Formerly Used Defense Sites and Installation Restoration Program activities), HTRW actions associated with Civil Works projects, and HTRW projects of other government agencies. Such activities include, but are not limited to, preliminary assessments/site inspections;

remedial investigations; feasibility studies; engineering evaluations/cost analyses; RCRA facility investigations/corrective measures studies/corrective measures implementations/closure plans/Part B permits; or any other predesign investigations, remedial design, or remedial construction at known, suspected, or potential HTRW sites. Also includes activities conducted at containerized HTRW sites (leaking PCB transformers and leaking or suspected leaking underground storage tanks that contain hazardous substances).

Hazardous, Toxic, Radioactive Waste (HTRW) operation: refers to a specific function on an HTRW site, such as sampling, monitoring, excavation, drum removal, etc.

Hazardous, Toxic, Radioactive Waste (HTRW) site: any facility or location which (1) requires the planned or emergency clean-up of hazardous, toxic, radioactive waste, and (2) is designated as an uncontrolled hazardous waste site or covered by the Resource Conservation and Recovery Act.

Laboratory waste pack: a drum containing individual containers of laboratory materials normally surrounded by cushioning absorbent material.

Levels of protection: see Appendix L.

Overexposure: exposure to a safety or health hazard above the permissible exposure limits or, if there is no permissible exposure limit, above the published exposure levels for the hazard.

Pre-entry briefings: an information briefing given by the site safety and health supervisor to employees before their entry to an HTRW site and instructing employees in the contents of the site-specific safety and health plan.

Safety and health program: a written program which describes the worksite; the work activities; the hazards associated with the work activities and the means for their control; and the structure,

policies, and procedures of the organizations involved in the HTRW activities.

Site control procedures: procedures delineated in the site control program which will be used to minimize any potential contamination of workers, protect members of the public from the site's hazards, and prevent vandalism.

Site Safety and Health Supervisor: that individual on an HTRW site who is responsible to the employer and has the authority and knowledge necessary to implement the site-specific safety and health plan and verify compliance with safety and health requirements.

Site-specific safety and health plan (SSHP): a written plan which establishes policies and procedures for protecting workers and members of the public from the specific hazards of the HTRW site for which the plan was developed.

Site work zones: zones of differing work activities and hazards established to reduce the accidental spread of hazardous substances from a contaminated to an uncontaminated area and to control exposure of personnel to HTRW hazards. There are generally three categories of site work zones - (1) exclusion zones, where contamination does or could occur, (2) contamination-reduction zones, which are transition areas between contaminated areas and clean areas and where decontamination takes place, and (3) support zones, which are uncontaminated areas where administrative and support functions are located.

SECTION 29

BLASTING

29.A GENERAL

29.A.01 Prerequisites.

a. Permission in writing shall be obtained from the Government's designated authority before explosive materials are brought on the job site; periodic replenishment of approved supplies does not require written approval.

b. Prior to bringing explosives on site, the contractor shall develop a blasting safety plan. As a minimum, this plan shall be accepted by the Government's designated authority and include the following:

(1) list the names, qualifications, and responsibilities of personnel involved with explosives, and

(2) delineate the contractor's requirements for handling, transportation, and storage of explosives; loading procedures; safety signals; danger area clearance; methods for securing the site; vibration and damage control; post-blast inspection and misfire procedures; and post-blast ventilation requirements.

29.A.02 The transporting, handling, storage, and use of explosives, blasting agents, and blasting equipment shall be directed and supervised by a person of proven experience and ability in blasting operations: these activities shall be in accordance with the requirements of the manufacturers, the Institute of Makers of Explosives, and, where applicable, DOD explosives safety standards. > **See Section 26.J**

29.A.03 All persons working with explosives shall be in good physical condition and be able to understand and give written and verbal orders.